

## Material characterization of palm oil fuel ash (POFA) mixed with granite residual soil

### ABSTRACT

The palm industry in Malaysia is a growing industry as from a mere 400 hectares planted in 1920, the hectarage increased to 5 million hectares in 2011 [1]. A by-product known as palm oil fuel ash (POFA) was a waste from the palm industry. Uncontrolled dumping of POFA give a serious impacts to environmental which creates pollution and health hazard. In this paper, the material characterization of POFA as an additive material to granite residual soil in terms of physical, mineralogical, chemical and mechanical properties has been investigated for the potential usage of the material. Results showed a general improvement of soil sample when mixed with POFA in all physical properties. The domain mineral present in natural soil is kaolinite. The mechanical behaviour also showed an improvement especially when compared to the landfill hydraulic barrier requirements.

**Keyword:** Chemical; Granite residual soil; Mechanical; Palm oil fuel ash (POFA); Physical and mineralogical